

CLAIMS

What is claimed:

1. An apparatus for deploying a bronchial device in a bronchial passageway in a lung of a patient, comprising:
 - 5 a flexible shaft having an inner lumen and a distal end adapted to engage the bronchial isolation device;
 - a wire slidably disposed in the inner lumen; and
 - a housing movably coupled to the distal end of the shaft and configured to receive the bronchial device;
 - 10 wherein the wire is connected to the housing to produce relative movement between the housing and the shaft to deploy the bronchial device from the housing.
2. The apparatus of claim 1, wherein the housing is releasably coupled to the shaft.
- 15 3. The apparatus of claim 1, further comprising a flange coupled to the distal end of the shaft and movably disposed in the housing, wherein the flange is adapted to engage the bronchial device.
- 20 4. The apparatus of claim 3, wherein the flange is releasably coupled to the shaft.
5. The apparatus of claim 1, wherein the housing is rigid.

6. The apparatus of claim 1, wherein the housing is shapable into a desired cross-sectional shape.

7. The apparatus of claim 1, wherein the housing has a non-circular cross-section.

8. The apparatus of claim 7, wherein the housing is crescent-shaped or partially-circular in cross-section.

9. The apparatus of claim 7, wherein the housing is oval or elliptical in cross-section.

10. The apparatus of claim 1, wherein the housing is configured to remain stationary relative to the bronchial passageway as the bronchial device is deployed therefrom.

11. The apparatus of claim 1, wherein the distal end of the shaft is configured to remain stationary relative to the bronchial passageway as the bronchial device is deployed from the housing.

12. The apparatus of claim 1, wherein the shaft is configured to be placed through a working channel of a bronchoscope.

13. The apparatus of claim 12, wherein the housing is collapsible for insertion through the working channel.

14. The apparatus of claim 12, wherein the housing has a cross-sectional size larger than a cross-sectional size of the working channel.

15. The apparatus of claim 12, wherein the housing is adapted for attachment to the shaft after the shaft has been positioned in the working channel.

16. The apparatus of claim 12, further comprising a handle adapted to move the wire relative to the shaft, the handle being adapted for attachment to the shaft and the wire after the shaft has been positioned in the working channel.

17. The apparatus of claim 12, further comprising a locking mechanism for locking the position of the shaft relative to the working channel.

18. The apparatus of claim 17, wherein the locking mechanism comprises a clamp slidably coupled to the shaft, the clamp being configured to engage the shaft for locking the shaft in a desired position.

19. The apparatus of claim 18, wherein the clamp may be coupled to the bronchoscope.

20. The apparatus of claim 1, wherein the shaft defines a longitudinal axis, the housing being coupled to the shaft off-center from the longitudinal axis.

21. A guidewire for guiding a bronchial device into a bronchial passageway in a lung, the bronchial device having an inner lumen, the guidewire comprising:
an elongate flexible wire having a distal end configured for introduction through the patient's trachea into the bronchial passage, the wire being slidably positionable in the inner lumen of the bronchial device;

an anchor coupled to the wire, the anchor being configured to engage a wall of the bronchial passage to retain the position of the guidewire therein.

22. The guidewire of claim 21, wherein the bronchial device comprises a bronchoscope.

23. The guidewire of claim 21, wherein the bronchial device comprises a delivery catheter for delivering a flow control device into the bronchial passage.

24. The guidewire of claim 21, wherein the bronchial device comprises a flow control device for modifying fluid flow through the bronchial passage.

25. The guidewire of claim 21, wherein the anchor comprises a plurality of struts, the struts being movable radially outward from the wire to engage the wall of the bronchial passage.

26. The guidewire of claim 25, wherein the wire has an inner lumen, the guidewire further comprising an inner wire slidably disposed in the inner lumen for moving the struts.

5 27. The guidewire of claim 21, wherein the anchor comprises an inflatable balloon, the wire having an inflation lumen therein in communication with the balloon.

28. A method of positioning a device in a bronchial passageway in a patient's lung, the method comprising:

10 positioning a guidewire in the bronchial passageway, the guidewire having an anchor coupled thereto;

engaging the anchor to a wall of the bronchial passage to retain the position of the guidewire therein;

inserting the guidewire through a lumen in the device; and

15 sliding the device along the guidewire into the bronchial passage.

29. The method of claim 28, wherein engaging the anchor to a wall of the bronchial passageway comprises expanding the anchor to engage the wall of the bronchial passageway.

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30. The method of claim 29, wherein expanding the anchor comprises inflating a balloon coupled to the guidewire.

31. The method of claim 29, wherein expanding the anchor comprises moving a plurality of struts radially outward from the guidewire.

32. The method of claim 28, wherein the device comprises a
5 bronchoscope.

33. The method of claim 28, wherein the device comprises a delivery catheter.

10 34. The method of claim 28, further comprising deploying a flow control element into the bronchial passageway from the device.

35. The method of claim 28, wherein positioning the guidewire in the bronchial passageway comprises positioning the guidewire in a lumen of a
15 bronchoscope positioned in the bronchial passageway.

36. The method of claim 35, further comprising removing the bronchoscope after engaging the anchor to leave the guidewire in place in the bronchial lumen.

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37. A method of deploying a bronchial device in a bronchial passageway in a patient's lung, the method comprising:

positioning a bronchoscope in the patient's lung, the bronchoscope having a working channel;

positioning a shaft of a delivery catheter through the working channel;
coupling a housing to a distal end of the shaft while the shaft is positioned in
the working channel;

advancing the delivery catheter with the housing carrying the bronchial device
5 until the housing is positioned in the bronchial passageway; and
releasing the bronchial device from the housing.

38. The method of claim 37, further comprising inserting the bronchial
device into the housing prior to coupling the housing to the distal end of the shaft.

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39. A method of deploying a bronchial device in a bronchial passageway in
a patient's lung, the method comprising:

providing a bronchoscope, the bronchoscope having a working channel;

positioning a shaft of a delivery catheter through the working channel, the
15 shaft having a housing coupled to its distal end, the housing carrying the bronchial
device;

coupling a handle to a proximal end of the shaft with the shaft positioned in
the working channel, the handle having a movable actuator;

positioning the bronchoscope in the patient's lung with the shaft positioned in
20 the working channel;

advancing the delivery catheter until the housing is positioned in the bronchial
passageway; and

moving the actuator to release the bronchial device.

40. A method of deploying a bronchial device in a bronchial passageway in a patient's lung, the method comprising:

positioning a bronchoscope in the patient's lung, the bronchoscope having a working channel;

5 positioning a delivery catheter through the working channel, the delivery catheter having a housing carrying the bronchial device;

advancing the delivery catheter until the housing is positioned in the bronchial passageway;

locking the delivery catheter in position relative to the working channel; and

10 releasing the bronchial device from the housing.